

User's Manual for the Remote Data Entry Tool

Appendix J

March 2002

**User's Manual for
the Remote Data Entry Tool**

***R/V Lake Guardian*
Great Lakes Water Quality Survey**

**Great Lakes National Program Office
Chicago, Illinois**

Version 2.2: March 2002

New Features in Version 2.2

Version 2.2 of the Remote Data Entry Tool contains several new features:

Preparation of Chemistry Standards - this tabpage allows users to prepare samples that are used in the quality assurance process. More information on this tabpage can be found in the Sheet-by-Sheet Data Entry Instructions - Preparation of Chemistry Standards sections of the user's guide.

Control Standards Board Chemistry - this tabpage allows users to enter control standards for the quality assurance process. More information on this tabpage can be found in the Sheet-by-Sheet Data Entry Instructions - Control Standards Board Chemistry sections of the user's guide.

Default Row Saving - this feature allows the user to enter a default row, exit the application, then have the same default row present upon re-entering the application. This feature will save the user from having to re-enter default data throughout the survey.

Export Submissions - this feature allows users to export submissions from the Remote Database. More information on this feature can be found in the Export Submissions section of this user's guide.

Import Data Sets - this feature allows users to import data sets into the Remote Database. More information on this feature can be found in the Import Data Sets section of this user's guide.

Delete Project and Submission Data - this feature allows users to delete old project and submission data residing in the Remote Database. This feature will help to ensure that database space is being used efficiently. More information on this feature can be found in the Delete Project and Submission Data section of this user's guide.

Remote Database Administration - this feature allows users to check on the status of data submissions within the database and make changes accordingly. More information on this feature can be found in the Remote Database Administration and Troubleshooting section of this user's guide.

In addition to these new features, Version 2.2 has been tuned to improve performance so that tab pages open and save more quickly.

User's Manual for the Remote Data Entry Tool

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I. Introduction

The Remote Data Entry Tool was developed to decrease the amount of time it takes to transfer data from paper form into electronic form during the survey. The tool allows EPA and other personnel to enter Water Quality Survey data into an Oracle database using the GLENDATA Standard while the survey is in progress, rather than waiting until the survey is over to transfer and QC the data. This should ensure that all required data are entered as soon as possible.

The tool was developed by AMS, Inc. using the hard copy data forms as a guide to the quantity and type of information collected on the water quality surveys. Generally, there is a 1:1 correspondence between hard copy forms and data entry screens (see diagram below). Given that the system is still new, there may be a few workarounds to transfer the data from paper to electronic form. Users are encouraged to submit their comments and suggestions.

For assistance, please contact the following people:

Ken Klewin 312-886-4794	(General User Questions) klewin.kenneth@epa.gov
Hilary Price 703-227-4031	(Application Troubleshooting) hilary_price@amsinc.com
George Mbogo 312-353-7463	(GLENDATA/Oracle Troubleshooting) mbogo.george@epa.gov
Barry Manne PAGER 312-272-0495	(Hardware/Network Troubleshooting) manne.barry@epa.gov

II. Using the Remote Data Entry Tool

This section provides detailed instructions for navigating through the tool using a mouse. The most frequently used commands are:

- New (a new Submission)
- Open (an existing Submission)
- Save
- Cut
- Copy
- Paste
- Add Row
- Insert Row
- Delete row

These commands are standardized with toolbar buttons similar to other Windows applications.

a. Getting Started

The first steps of creating a data submission are launching the Data Entry Tool and then completing the Submission Setup window. A submission is a group of tables in GLENDa that contain related information.

To launch the data entry tool-From the Desktop, click on the Remote Data Entry Tool Shortcut icon.

A logon window will appear and you will be prompted for your user name and password. Refer to the User's list. Typically, your first initial followed by your entire last name serves as the user's name AND password. The tool accepts lowercase or uppercase letters. If your name is not part of the user's list, arrange to use an alias user name.

i. Creating a New Submission

Click on File-New or click on the toolbar button for New Submission.

The Submission Setup window will appear and you will be prompted to enter five pieces of information (use the drop-down lists where possible):

- Name (of Submission) = Lake Whatever
- Project = WQS-SP2001
- Data Contact = Glenn Warren (Chief Scientist)
- Description = Water Quality Survey, Summer 2001, Lake *Whatever*
- Data Type(s) = Station, Visit, Field, and Lab Data (last item on list)

You may work with the existing submissions or you may use to create additional submissions. Reasons for creating new submissions include:

- Allowing multiple users to enter data simultaneously-each submission can only be accessed by one user at a time. To allow multiple users to report data simultaneously, additional submissions can be created. Care should be taken to ensure that the same data are not entered in multiple submissions. Data will still need to be entered in the order specified in section b of this user's guide.
- Improving performance-performance will improve if data are split across multiple submissions. For example, the weather tab page will open more quickly if it contains 6 rows than if it contains 12 rows. If it starts to take too long for this tab page to open, performance can be improved by entering the remaining weather records in a new submission.

ii. Opening an Existing Submission

If a submission has already been created, open it by clicking on the *File-Open* command or the Open Submission toolbar button.

Only one person at a time can enter data on a particular submission. For example, if Person A is editing the Lake Erie submission, Person B cannot access the Lake Erie submission from another computer. This feature prevents two people from entering the same data without each other knowing.

All data entry work is tracked behind the scenes using the user ID. Each time a submission is saved, the Tool records

- who last modified the submission and the date/time.

iii. Saving a Submission

To save an open submission, click on the *File-Save* menu command or the Save toolbar button. The Tool will validate all data entered for date and time correlations, e.g. does a sampling time for a specific station fall between the station visit arrival and departure times? Also, the Tool will verify that all required fields for any data rows have been completed. In the event that the tool finds errors or omissions, you will have to correct them before it will let you save them.

Be sure to save your work frequently! You should save your work

- every time you change sheets
- every time you leave the computer
- after every few rows of data you enter

b. General Data Entry Instructions

This section provides general instructions for using the Remote Data Entry Tool.

i. Data Entry Order

The following table shows which hard copy data forms get entered into which data entry sheet:

Relationship Between Hard Copy Forms & Electronic Sheets:

HARD COPY FORM	DATA ENTRY SHEET
Survey Information	Survey
Station Information	Station Visit
	Weather
Rosette Sampling Data	Rosette Sampling
Benthic Ponar Grab Sampling	Benthic Ponar Grab Sampling
Zooplankton Sampling Secchi Disk Depth	Zooplankton Sampling
	Secchi Depth
<i>(Batchlog)</i>	Batchlog
Chlorophyll a Preparation	Chlorophyll a Preparation
Nutrients Preparation	Nutrients Preparation
POC, PN, PP Preparation	POC, PN, PP Preparation
TSS Preparation	TSS Preparation
Preparation of Board Chemistry Standards	Preparation of Chemistry Standards
Calibration of Board Chemistry Instruments	Control Standards Board Chemistry Instruments
Board Chemistry	Board Chemistry Results
Dissolved Oxygen	Dissolved Oxygen Results
DO Interference Check	<i>Not Entered into GLENDa (at this time)</i>

You must input data in a sequential manner, starting with the Survey sheet and ending with the Board (or DO if done) sheet. It is recognized that the hard copy forms will be filled out in a different chronological order, however, the data for any particular station must be input in the following order:

Data Entry Sheets with Entry Order

- 1) Survey
- 2) Station Visit
- 3) Weather and Sampling Sheets-the following sheets (a-e) can be entered in any order so long as the corresponding Station Visits are entered first and so long as the Rosette Samples are entered before their corresponding Preparation and Results records.
 - a. Weather
 - b. Rosette Sampling
 - c. Benthic Ponar Grab Sampling

- d. Zooplankton Sampling
- e. Secchi Depth
- 4) Batch Log**
- 5) Preparation of Chemistry Standards
- 6) Preparation and Results Sheets including-the following sheets (a-g) can be entered in any order so long as the corresponding Rosette Samples, Batches, and/or Control Standard samples have been entered.
 - a. Chlorophyll a Preparation
 - b. Nutrients Preparation
 - c. POC, PN, PP Preparation
 - d. TSS Preparation
 - e. Control Standards Board Chemistry
 - f. Board Chemistry Data
 - g. Dissolved Oxygen Results

For example, the Survey data must be entered first, followed by the Station data, then any of the Field Sampling data including Weather data. The Batch Log must be completed before the Preparation or Board or DO results can be entered. **This input order is required so that values entered on one sheet (e.g. sample IDs on Rosette Sampling sheet) will show up as a drop-down table on a following sheet (Board Chemistry Results sheet).**

** The Batch Log sheet can be filled out at any time - it can be the first sheet completed, however, it must be completed before the Preparation, Board, and DO pages.

ii. Required Fields

Fields in Blue indicate a required field. The Tool will not allow you to move onto another sheet or save your data until the required fields are filled in for each row of data.

iii. Keyboard Navigation:

This section provides information about how to navigate through the Remote Data Entry Tool using the keyboard. These keyboard shortcuts are similar to those of other Windows applications. The keyboard equivalents for mouse actions used throughout the Remote Data Entry Tool are listed below.

Up/Down Cursor keys	move cursor one row above or below
Right/Left Cursor keys	move cursor one space to the right or left
<Tab>	moves cursor to the next field to the right
<Shift>+<Tab>	moves cursor to the previous field (to the left)
<Home>	moves to leftmost part of a field
<End>	moves cursor to rightmost part of a field
<Backspace>	deletes one space of data

All date and time fields: you do not have to type in the "/" or ":" marks when entering the date or time.

Data in any field can be cut, copied, and pasted into any other field

iv. Adding, Inserting, and Deleting Rows

The Tool allows you to input default values for each field on each sheet (located as the top row of each sheet). Once the values have been input, add a row to the data record (Edit-Add Row or button). All fields with default values will automatically be populated. Section c gives detailed entry instructions for each sheet, including suggestions for when to enter default values.

Using the Add Row command adds a row to the bottom of the sheet record. To insert a row in the middle of the sheet, click on Edit-Insert Row or the Insert Row toolbar button. To delete a row, click the cursor in that row, and then click Edit-Delete Row or the button.

Warning! Do not delete records if they are referenced by other records. For example, you must not delete a sample from the Rosette Sampling sheet once results have been reported for that sample in the Board Chemistry Results sheet.

v. Sorting, Filtering, and Printing Data

The Remote Data Entry Tool allows you to sort, filter, and print data. These functionalities can be accessed from the main menu.

vi. Saving Data to External Files

Data from the Remote Data Entry Tool can be saved as comma separated or tab delimited text. To save data to an external file, select the Save Rows As option from the File menu. Select a location and specify a name for your file. When you click OK, the data contained within the currently visible tab page will be saved to the file you have specified. The file can then be transferred to disk for removal from the ship.

c. Sheet-by-Sheet Data Entry Instructions

This section provides instructions and tips for entering data into the Remote Data Entry Tool. The instructions are organized by Data Entry Sheet.

Survey:

The Spring 2002 Water Quality Survey only needs to be recorded in one data submission. For example, if the Spring 2002 Water Quality Survey is recorded in the Lake Erie data submission, it does not need to be re-recorded in the data submissions for any of the other lakes. Once the

survey has been recorded in one submission, it will show up in the Survey ID drop-down list on the Station Visit Data Entry Sheet of all submissions.

Station Visit:

Warning! Please note that survey must be reported before entering any station visits.

Tip: Before entering data, set defaults for Survey ID and Time Zone in the default row. If you are entering multiple visits that occurred during a single day, you may also want to set defaults for Arrival Date Time and Departure Date Time.

The Visit IDs for the Spring Survey have been pre-uploaded to the database and should appear in the Visit ID drop-down list. Selecting a Visit ID from the drop-down list should automatically populate the Station ID column. If a Visit ID does not appear in the drop-down list, it can be manually typed in. If the Station ID is populated incorrectly, it can be manually selected from the drop-down list.

Longitude degrees should be entered as a negative number. If the data entry form lists longitude degrees = 85 and longitude minutes = 29.862, then you should record longitude degrees = -85 and longitude minutes = 29.862 in GLEND A.

Weather:

Warning! Please note that station visits must be entered using the Station Visit sheet before their Weather information can be reported. Once a station visit has been entered using the Station Visit sheet, it will appear in the Visit ID drop-down list on the Weather sheet.

Tip: Before entering data, set a default for the Method.

Enter all weather results for a row before trying to save or move to another sheet. If you try to save or move to another sheet without entering all results, you will be prompted to either enter the missing results or confirm that there are no results for the parameter in question.

Enter the Pilot's name in the Personnel column. If the Pilot's name does not appear in this column, scroll to the bottom of the drop-down list, select "not in list, record name in remarks/description column", and type the pilot's name into the Remarks field.

Remarks indicating deviations from the SOP should be reported in the Method Exception Text field. All other remarks can be reported in the remarks field.

Rosette Sampling:

Warning! Please note that station visits must be entered using the Station Visit sheet before their Rosette Sampling information can be reported. Once a station visit has been entered using the Station Visit sheet, it will appear in the Visit ID drop-down list on the Rosette Sampling sheet.

Tip: Before entering the rosette samples for a visit, set defaults in the Visit ID, Sample Date Time, Total Depth, Marine Tech, EPA Personnel, and Method fields.

The Sample IDs for the Spring Survey have been pre-uploaded to the database and should appear in the Sample ID drop-down list. Selecting a Sample ID from the drop-down list should automatically populate the Depth Code, QC Identifier, and Replicate/Duplicate # columns. If a Sample ID does not appear in the drop-down list, it can be manually typed in. If the Depth Code, QC Identifier, or Replicate/Duplicate # is populated incorrectly, it can be entered manually. You do not need to report a Depth Code for samples not collected from the water column (e.g., FRB samples).

Remarks indicating deviations from the SOP should be reported in the Method Exception Text field. All other remarks can be reported in the remarks field.

Benthic Ponar Grab Sampling:

Warning! Please note that station visits must be entered using the Station Visit sheet before their Benthic Ponar Grab Sampling information can be reported. Once a station visit has been entered using the Station Visit sheet, it will appear in the Visit ID drop-down list on the Benthic Ponar Grab Sampling sheet.

Tip: Before entering the benthic ponar grab samples for a visit, set defaults in the Visit ID, Sample Date Time, Water Depth, Personnel, and Method fields.

The Sample IDs for the Spring Survey have been pre-uploaded to the database and should appear in the Sample ID drop-down list. Selecting a Sample ID from the drop-down list should automatically populate the QC Identifier and Replicate/Duplicate # columns. If a Sample ID does not appear in the drop-down list, it can be manually typed in. If the QC Identifier or Replicate/Duplicate # is populated incorrectly, it can be entered manually.

Remarks indicating deviations from the SOP should be reported in the Method Exception Text field. All other remarks can be reported in the remarks field.

Zooplankton Sampling:

Warning! Please note that station visits must be entered using the Station Visit sheet before their Zooplankton Sampling information can be reported. Once a station visit has been entered using

the Station Visit sheet, it will appear in the Visit ID drop-down list on the Zooplankton Sampling sheet.

Tip: Before entering the zooplankton samples for a visit, set defaults in the Visit ID, Sample Date Time, Personnel, and Method fields.

The Sample IDs for the Spring Survey have been pre-uploaded to the database and should appear in the Sample ID drop-down list. Selecting a Sample ID from the drop-down list should automatically populate the QC Identifier and Replicate/Duplicate # columns. If a Sample ID does not appear in the drop-down list, it can be manually typed in. If the QC Identifier or Replicate/Duplicate # is populated incorrectly, it can be entered manually.

Remarks indicating deviations from the SOP should be reported in the Method Exception Text field. All other remarks can be reported in the remarks field.

Secchi Depth:

Warning! Please note that station visits must be entered using the Station Visit sheet before their Secchi Depth information can be reported. Once a station visit has been entered using the Station Visit sheet, it will appear in the Visit ID drop-down list on the Secchi Depth sheet.

Tip: Before entering the secchi depths for a visit, set a default for Method ID.

Remarks indicating deviations from the SOP should be reported in the Method Exception Text field. All other remarks can be reported in the remarks field.

Batch Log:

Insert one row into the Batch Log sheet per Batch ID.

Chlorophyll a Preparation:

Warning! Please note that field samples must be entered using the Rosette Sampling sheet before their Chlorophyll a Preparation information can be reported. Once a field sample has been entered using the Rosette Sampling sheet, it will appear in the Sample ID drop-down list on the Chlorophyll a Preparation sheet. Field sample IDs should be selected from this list rather than being typed in. Only in the case of synthetic samples with no connection to the field (e.g., calibration standards, lab blanks) should Sample IDs ever be typed in on the Chlorophyll a Preparation sheet.

Tip: Before entering the data for a batch, set defaults for the Preparation Batch ID, Preparation Date Time, Volume Filtered, Personnel, Method, and Remarks.

Insert one row into the Chlorophyll a Preparation sheet per sample ID.

Selecting a Sample ID from the drop-down list should automatically populate the QC Identifier and Replicate/Duplicate # columns. In the rare case that a Sample ID is typed in (lab synthetic samples only), the QC ID and replicate duplicate # can be entered manually.

Remarks indicating deviations from the SOP should be reported in the Method Exception Text field. All other remarks can be reported in the remarks field.

Nutrients Preparation:

Warning! Please note that field samples must be entered using the Rosette Sampling sheet before their Nutrients Preparation information can be reported. Once a field sample has been entered using the Rosette Sampling sheet, it will appear in the Sample ID drop-down list on the Nutrients Preparation sheet. Field sample IDs should be selected from this list rather than being typed in. Only in the case of synthetic samples with no connection to the field (e.g., calibration standards, lab blanks) should Sample IDs ever be typed in on the Nutrients Preparation sheet.

Tip: Before entering the data for a batch, set defaults for the Preparation Batch ID, Preparation Date Time, Personnel, Method, and Remarks.

Insert one row into the Nutrients Preparation sheet per sample ID.

Selecting a Sample ID from the drop-down list should automatically populate the QC Identifier and Replicate/Duplicate # columns. In the rare case that a Sample ID is typed in (lab synthetic samples only), the QC ID and replicate duplicate # can be entered manually.

Remarks indicating deviations from the SOP should be reported in the Method Exception Text field. All other remarks can be reported in the remarks field.

? - Why isn't there a place to report Analyte Group? And why do I only enter one row per Sample ID into GLENDa when there are 3 Analyte Groups per sample? - To reduce the amount of data that needs to be reported, GLENDa automatically creates 3 sample preparation records for every record you enter (one for NO₃/TDP, one for Cl/Si, and one for TP). This is done behind the scenes, so you only see one record for all 3 Analyte Groups.

POC, PN, PP Preparation:

Warning! Please note that field samples must be entered using the Rosette Sampling sheet before their POC, PN, PP Preparation information can be reported. Once a field sample has been entered using the Rosette Sampling sheet, it will appear in the Sample ID drop-down list on the POC, PN, PP Preparation sheet. Field sample IDs should be selected from this list rather than being typed in. Only in the case of synthetic samples with no connection to the field (e.g., calibration standards, lab blanks) should Sample IDs ever be typed in on the POC, PN, PP Preparation sheet.

Tip: Before entering the data for a batch, set defaults for the Preparation Batch ID, Preparation Date Time, Personnel, Method, and Remarks.

Insert one row into the POC, PN, PP Preparation sheet per sample ID.

Selecting a Sample ID from the drop-down list should automatically populate the QC Identifier and Replicate/Duplicate # columns. In the rare case that a Sample ID is typed in (lab synthetic samples only), the QC ID and replicate duplicate # can be entered manually.

Remarks indicating deviations from the SOP should be reported in the Method Exception Text field. All other remarks can be reported in the remarks field.

TSS Preparation:

Warning! Please note that field samples must be entered using the Rosette Sampling sheet before their TSS Preparation information can be reported. Once a field sample has been entered using the Rosette Sampling sheet, it will appear in the Sample ID drop-down list on the TSS Preparation sheet. Field sample IDs should be selected from this list rather than being typed in. Only in the case of synthetic samples with no connection to the field (e.g., calibration standards, lab blanks) should Sample IDs ever be typed in on the TSS Preparation sheet.

Tip: Before entering the data for a batch, set defaults for the Filtration/Preparation Batch ID, Filtration Date Time, Personnel, Method, and Remarks.

Insert one row into the TSS Preparation sheet per sample ID.

Selecting a Sample ID from the drop-down list should automatically populate the QC Identifier and Replicate/Duplicate # columns. In the rare case that a Sample ID is typed in (lab synthetic samples only), the QC ID and replicate duplicate # can be entered manually.

Remarks indicating deviations from the SOP should be reported in the Method Exception Text field. All other remarks can be reported in the remarks field.

Preparation of Chemistry Standards:

Tip: Before entering the data, set defaults for the Method SOP, Prep Start Date and Time, Analyst, and Remarks.

Insert one row into the Preparation of Chemistry Standards sheet per Control Sample.

Control Standards Board Chemistry:

Warning! Please note that control samples must be entered using the Preparation of Chemistry Standards sheet before their Control Standards Board Chemistry information can be reported.

Once a control sample has been entered using the Preparation of Chemistry Standards sheet, it will appear in the Sample ID drop-down list on the Control Standards Board Chemistry sheet. Control sample IDs should be selected from this list rather than being typed in.

Tip: Before entering the data, set defaults for the Control Check Date Time, Analyst, Method, and Remarks.

Insert one row into the Control Standards Board Chemistry sheet each time a Control Sample is analyzed.

Selecting a Sample ID from the drop-down list should automatically populate the Parameter and Control Standards columns.

Board Chemistry Results:

Warning! Please note that field samples must be entered using the Rosette Sampling sheet before their Board Chemistry Results can be reported. Once a field sample has been entered using the Rosette Sampling sheet, it will appear in the Sample ID drop-down list on the Board Chemistry Results sheet. Field sample IDs should be selected from this list rather than being typed in. Only in the case of synthetic samples with no connection to the field (e.g., calibration standards, lab blanks) should Sample IDs ever be typed in on the Board Chemistry Results sheet.

Tip: Before entering the data for a batch, set defaults for the Analytical Batch ID, Analytical Date Time, Analyst, and Method.

Selecting a Sample ID from the drop-down list should automatically populate the QC Identifier and Replicate/Duplicate # columns. In the rare case that a Sample ID is typed in (lab synthetic samples only), the QC ID and replicate duplicate # can be entered manually.

Enter all board chemistry results for a row before trying to save or move to another sheet. If you try to save or move to another sheet without entering all results, you will be prompted to either enter the missing results or confirm that there are no results for the parameter in question.

Remarks indicating deviations from the SOP should be reported in the Method Exception Text field. All other remarks can be reported in the remarks field.

Dissolved Oxygen Results:

Warning! Please note that field samples must be entered using the Rosette Sampling sheet before their Dissolved Oxygen Results can be reported. Once a field sample has been entered using the Rosette Sampling sheet, it will appear in the Sample ID drop-down list on the Dissolved Oxygen Results sheet. Field sample IDs should be selected from this list rather than being typed in. Only in the case of synthetic samples with no connection to the field (e.g., calibration standards, lab blanks) should Sample IDs ever be typed in on the Dissolved Oxygen Results sheet.

Tip: Before entering the data for a batch, set defaults for the Analytical Batch ID, Analytical Date Time, Analyst, and Method.

Selecting a Sample ID from the drop-down list should automatically populate the QC Identifier and Replicate/Duplicate # columns. In the rare case that a Sample ID is typed in (lab synthetic samples only), the QC ID and replicate duplicate # can be entered manually.

Remarks indicating deviations from the SOP should be reported in the Method Exception Text field. All other remarks can be reported in the remarks field.

? - Where do I enter values for Titrant Used D.O., BOD Bottle Volume, and the D.O. Interference Check Parameters? - Only the Volume Corrected D.O. and Corrected Table Value are being captured in GLENDa at this time.

d. Backing up the Database

This section provides instructions for backing up the database. Backing up the database will ensure that data entered during a survey is not lost in the event that the database crashes (an unlikely, but possible event).

Backups can be made as frequently as desired. It is recommended that backups be made twice daily.

To backup the database, perform the following steps:

- i) Log onto the Remote Data Entry Tool
- ii) From the main menu, select Tools -> Backup
- iii) A Save As... dialog box will pop up. It is recommended that you create a separate directory for each backup.
- iv) Enter a filename. The filename entered will be used in all files created during the backup. This filename will have a number and a file ending (e.g., .csv) appended to the end for each data file. The number represents the order the data needs to be imported back into the database in the event data must be restored. Each backup will produce 21 data files (.csv), 21 control files (.ctl), 3 SQL files (.sql), and 1 Batch file (.bat). All of these files are needed to properly restore data in the event that data are lost.
- v) Once you have entered a filename, click Save. The progress of the backup will be displayed in the lower left hand corner of your screen. When the backup is complete, the lower left hand corner of your screen will display 'Ready'.

To save space on the hard drive of your PC, you may want to store backups for only 7 days. Each backup contains all of the data from the previous backup, as well as any new data entered. If multiple backups are taken each day, and all backups are kept, the space required for storing the data backups will grow quickly.

Specifying a directory and filename that have already been used will result in the earlier backup being overwritten.

In the event that you experience database problems that result in data being lost, you should contact your database administrator for instructions on how to restore the database. The following steps will allow you to import data into the database once the database has been restored:

NOTE: User must have the ancestor role as the default for this functionality to work properly.

- i) From the Start Menu of your computer, open an MS-DOS prompt
- ii) Change directories to the location of the most recent backup. On a Windows 98 machine, this is done by typing 'cd <directory name>'.
- iii) Determine the name of the bat file by typing 'dir *.bat' and pressing Return
- iv) Type <bat file name> <username> <password> and press return to execute the restore. For example, if the .bat file is named Monday_backup.bat, type Monday_backup.bat <username> <password>, then press Return. The username and password are the same ones you use to log onto the Remote Data Entry Tool.
- v) Once you have started the batch restore, it will run through a number of processes. The restore will connect to the database using sqlplus. It will delete the data in the tables it is restoring. It will then proceed to load the data using SQL Loader.

This process will run through all the files created during the backup. During this process it will create 3 files for each data file. It will create a .BAD file, a .DSC file, and a .LOG file. The .BAD file will contain any data that could not be imported because of the actual data. The reason for data being put in the .BAD file can be found in the .LOG file. It is recommended that you open each .LOG file and verify that all data were restored properly. If there was a problem with importing a file, the problem could trickle down to the other files' imports, so fix the data files in ascending order and rerun the .bat file. For assistance correcting issues listed in the .LOG file, please contact AMS.

As in any database system, the Remote Database requires some tuning as it is worked on via the COMPASS Remote Data Entry Tool. Therefore, the Remote Database Administration functionality contains a tuning tabpage that helps to periodically ensure adequate performance. It is recommended that the following procedure be carried out twice a day or when database activity becomes slower than usual.

- i) Log onto the Remote Data Entry Tool
- ii) From the main menu, select Tools -> Remote Database Administration...
- iii) A Remote Database Administration window will pop up. Locate the Misc. tabpage to the right of the Remote Database Administration tab. Click on the Misc. tab.

- iv) At this point, locate the button entitled "Tune Tables" in the middle of the tab pages. Click the "Tune Tables" button. The process may take a few minutes to complete.

e. Export Submissions

This section provides instructions for exporting data submissions from the Remote Database. Exporting submissions provides an easy and efficient way for GLNPO personnel to transfer survey data from the Remote Database to the GLENDA Database residing at GLNPO.

It is recommended that data be exported as the last step of a survey. After a survey is over, users should create one export file containing all data submissions so that all monitoring results collected during the survey are appropriately transferred from the Remote Database back to the GLENDA Database residing at GLNPO.

To export submission data, perform the following steps:

- i) Log onto the Remote Data Entry Tool
- ii) From the main menu, select Tools -> Export Submission(s)...
- iii) A Submission Export window will pop up. At this point, select the data submissions to be exported by clicking the box next to the data submission's name.
 - a. Note: Data submissions with a lock icon have already been exported and may not be exported again for version control purposes.
 - b. Note: The view in the Submission Export... window can be changed to list data submissions by their parent project or by the data submission's name. Clicking the Submissions Only radio button in the bottom left hand corner will list the data submissions alphabetically by the submission name.
Clicking the Project and Submissions radio button in the bottom left hand corner will list data submissions alphabetically by their parent project name, then alphabetically by their submission name.
- iv) After selecting all the data submissions to be exported, click the Export button in the lower right hand corner.
- v) A Save Export As dialog box will pop up. It is recommended that you create an export directory for the export.
- vi) Enter a filename. The filename entered will contain all the data selected during the export.
- vi) Once a filename has been entered, click Save. The progress of the export will be displayed in the lower left hand corner of your screen as well as in a status window displayed on the middle of the screen. When the export is complete, the lower left hand corner of the screen will display 'Ready'. Note: Performance can be improved by running the database tuning prior to performing the export.

- vii) Locate the directory in which the data submission(s) were saved to find the newly created export file. This file should be copied to disk and returned to Ken Klewin.

f. Remote Database Administration and Troubleshooting

This section provides instructions for updating data submission statuses within the Remote Database. The Remote Database Administration functionality also allows users to view information about the data submissions and tune the performance of the database.

To view information about a data submission, perform the following steps:

- i) Log onto the Remote Data Entry Tool
- ii) From the main menu, select Tools -> Remote Database Administration...
- iii) A Remote Database Administration window will pop up. The first tab in the Remote Database Administration window contains six columns that display information about the data submission. The column information is explained in the following descriptions:
 - a. Name - the name of a data submission.
 - b. Project - the parent project of the data submission.
 - c. Checkout Flag - the checkout status of the data submission.
 - d. Access Status - the access status of the data submission. Access Statuses are described further in the update access status section.
 - e. Last Modified Date - the date that the data submission was last modified.
 - f. Last Modified By - the user who last modified the data submission.

A data submission is flagged as either locked or unlocked within the Remote Database (submissions that are in use are locked, submissions that are not in use are unlocked). Please note that if the application is not shut down properly (e.g., computer is rebooted, user presses CTRL-ALT-DELETE), a submission may remain locked to other users even after it is no longer in use. If you are sure no other users are editing the submission, you can fix this problem by using the Remote Database Administration functionality.

To unlock a data submission (i.e. update the checkout status of a data submission), perform the following steps:

- iv) Log onto the Remote Data Entry Tool
- v) From the main menu, select Tools -> Remote Database Administration...
- ii) A Remote Database Administration window will pop up. At this point, locate the locked data submission(s).
- iii) After locating the locked data submission(s), click the corresponding drop down menu from the Checkout Flag column. Switch the status from Yes to No.
- vi) Click the OK button in the lower right hand corner.

A data submission also has an associated access status. The access status provides information about where the data submission was created and its current purpose. Please note that a submission may need to have its access status updated from time to time due to external circumstances. The Remote Database Administration functionality allows users to update the access status of data submissions.

To update the access status of a data submission, perform the following steps:

- i) Log onto the Remote Data Entry Tool
- ii) From the main menu, select Tools -> Remote Database Administration...
- iv) A Remote Database Administration window will pop up. Locate the Access Status column within the Remote Database Administration window. Click on a drop down menu within the column to view the statuses. The access statuses are described in the following section:
 - a. Example - the data submission is provided for example.
 - b. Exported - the data submission has already been exported.
 - c. New - the data submission is newly created.
 - d. Reference - the data submission is being provided as reference.
- iii) At this point, locate the data submission(s) that need to have the access status updated. Once the data submission to be updated is located, click the corresponding drop down menu from the Access Status column. Select the appropriate access status using the above guide.
- iv) Click the Save button in the lower right hand corner.

III. Other WQS Data Issues

All Samples entered on the Preparation, Preparation of Chemistry Standards, Board, and DO sheets **MUST** have a corresponding field record. Do not enter data for a sample in the Preparation, Board, or DO sheets unless it has already been entered in one of the sampling pages.

From Data Collection to Data Entry

All personnel completing the hard copy data forms (except for Bridge crew) should bring any completed forms to the EPA office

- at the end of their shift, or
- at the end of a 24-hour shift

for data entry. These completed forms should be placed in the folder marked "FORMS to be entered".

The data entry person must go up to the bridge to retrieve the station data form and return it to the bridge as soon as the data is entered (since all stations for one lake are on one page). This process will happen possibly more than once a day depending on the pace of sampling, data entry, etc.

Since the hard copy data forms are completed on a station-by-station basis, the data entry person will most likely have to wait for a few stations to be sampled, and for a few shifts to pass, before enough completed sheets are turned in. The ideal situation of having all the data sheets for a lake in front of the data entry terminal is not realistic.

V. Appendix

The following sections are functionalities that were recently added to the Remote Data Entry Tool. The purpose of this appendix is to provide a preview of these functionalities and their capabilities. These functionalities are not meant to be used by GLNPO on this survey.

a. Import Data Sets

This section provides instructions for importing data. Importing data sets provides an easy and efficient way for GLNPO personnel to transfer project metadata (e.g sample IDs, organization information) from the Enterprise Database to the Remote Database.

Data sets should be imported before a survey is underway. Before a survey starts, users should create files containing all necessary project metadata (e.g. sample IDs, survey participants) and import them into the Remote Database.

To import data sets, perform the following steps:

- i) Log onto the Remote Data Entry Tool
- ii) From the main menu, select Tools -> Import Data Set...
- iii) An Open Import File dialog box will pop up. Locate the directory where the import file is saved.
- iv) Select a filename to be imported. The filename selected should contain all the data to be imported.
- v) Once a filename has been selected, click Open.
- vi) An Import Dataset Question screen will pop up with the statistics of the selected import. After reviewing the statistics and deciding whether the information is correct, select Yes or No accordingly. Selecting Yes will begin the import process. Selecting No will stop the import process and return the user to the Main Menu window.
- vii) If the user selects Yes, the progress of the import will be displayed in the lower left hand corner of the screen as well as in a status window displayed on the middle of the screen. When the import is complete, the lower left hand corner of your screen will display 'Ready'.

b. Delete Project and Submission Data

This section provides instructions for deleting project and submission data from the Remote Database. Deleting data from the Remote Database will eliminate unnecessary data and free up disk space in the Remote Database.

As in any system, response times in COMPASS Remote Entry increase as the amount of data in the remote database increases. Therefore, project and submission data that are no longer being used should be deleted periodically to ensure adequate performance. However, GLNPO staff

should not delete these data until Ken Klewin has confirmed that the data have successfully been imported into the database residing at GLNPO.

To delete data sets, perform the following steps:

- v) Log onto the Remote Data Entry Tool
- vi) From the main menu, select Tools -> Delete Project and Submission Data...
- vii) A Project and Submission Deletion window will pop up. At this point, select the data submissions to be deleted by clicking the box next to the data submission's name. If it is a project that should be deleted, ensure that all related submissions are selected as well (projects may not be deleted unless all related submissions are selected as well).
 - a. Note: The view in the Project and Submission Deletion window can be changed to list data submissions by their parent project or by the data submission's name.
Clicking the Submissions Only radio button in the bottom left hand corner will list the data submissions alphabetically by the submission name.
Clicking the Project and Submissions radio button in the bottom left hand corner will list data submissions alphabetically by their parent project name, then alphabetically by their submission name.
- viii) It is recommended that users delete all submissions for a project at one time. After selecting all the data submissions and/or projects to be deleted, click the Delete button in the lower right hand corner. The progress of the deletion will be displayed in the lower left hand corner of your screen as well as in a status window displayed on the middle of the screen. This process may take a few minutes. When the deletion is complete, the lower left hand corner of the screen will display 'Ready'.

**Attachment A - Tips for GLENDa Remote Data Entry Tool
on the *R/V Lake Guardian***

March 2003

Important tips/hints:

1. **SAVE OFTEN!** That way you minimize the data you could lose if there is a problem. Also, the Remote tool does some data verification when prior to saving.
2. **Making changes to existing (i.e., saved) data: do so before adding new data:**
 - **Open the submission**
 - **Make your changes & save**
 - **Then you can start adding new data.**Otherwise you will get an error message that says: "The record you attempted to save has just been modified by another COMPASS user..."
3. Data must be entered in order of SV, F, then L submissions and tab pages from left to right. (This is because in a relational database the data on the later pages depends on data entered on the earlier pages.)
4. If you get locked out of a submission, go to the *Tools* menu > *Remote Database Administration*, then change the Checkout flag to "no".
5. The top line on each page is for defaults - enter data that will be required on many lines.
6. Items in BLUE are required.
7. Data on the Station Visit tab page is important, especially the Visit ID. This will be used to link other pages.
8. Batch log IDs need to be entered before data is entered on later pages. To enter Batch IDs, see below under Batch Log tab page.
9. Method codes are located on the bottom of each paper form.
10. Look at the User's Manual on the ship! There's lots of detail there.

Tools Menu

- *Backup* - end of shift (should be in Lake Guardian SOP manual)
- *Export Submission(s)* – at end of cruise; this will change the status of submissions that have been exported (go to “Remote database administration – data submission status” to unlock)
- *Import Data Set* – only database manager should do this
- *Delete Project and Submission Data* – only the database administrator should do this
- *Remote database administration*
 - *Data submission status*
 - Change checkout flag to “no” if submission is locked
 - Change access status to “new” if exported
 - *Misc* - tune tables will allow the tool to run faster - do at end of shift

Info on the Various Tab Pages

Submission setup:

Typically, each lake is set up ahead of time as three separate submissions (station visit, field, and lab), although this can vary; it's up to the folks entering data.

Name is whatever you want, usually something like "ER0211"

Project is selected from the drop-down list

Data contact is selected from the drop-down list

Description whatever, usually something like "spring 2002 lake erie data"

Data types select from the drop-down list

Survey tab page:

The survey ID is on the Rosette sampling data form or the Board chemistry form. Select the Visit ID and the Station ID from the drop-down list. Take the time to make sure they are correct before saving. These are the data that are used by other pages.

Weather tab page:

After data are entered, this may take a little bit to come up. These data are entered after the Survey data.

Rosette sampling tab page:

Select the Survey ID from the drop down list. This will then call up the right list of Sample IDs to choose from. After you choose the Sample ID from the list, the Depth code and QC identifier will be added automatically. Then add the rest of the data from the paper form.

Benthic ponar grab sampling tab page:

Like the Rosette page, after you select the Visit ID, the correlated Sample IDs and QC identifiers are called up.

Zooplankton sampling tab page:

Like the Rosette page, after you select the Visit ID, the correlated Sample IDs and QC identifiers are called up.

Secchi depth tab page:

Select the Survey ID from the drop down list. The rest is added from the paper form.

Batch log tab page:

This is one page that requires a lot of data entry if the batch log IDs are not pre-loaded. The batch IDs are located on the paper forms (the preparation pages below). The batch ID is essentially the Visit ID with a letter attached to the end, such as "B" for Board. There is a drop-down list for the various codes to attach.

Chlorophyll a Preparation tab page:

Select the Sample ID from the drop-down list, the QC identifier will be added automatically.

Nutrients Preparation tab page:

Select the Sample ID from the drop-down list, the QC identifier will be added automatically.

POC, PN, PP preparation tab page:

Select the Sample ID from the drop-down list, the QC identifier will be added automatically.

TSS preparation tab page:

Select the Sample ID from the drop-down list, the QC identifier will be added automatically.

Preparation of chemistry standards tab page:

This page is for recording the make-up of the standards.

Control standards board chemistry tab page:

This page is for recording the running of the control standards to see if they are within range.

Board chemistry results tab page:

Select the sample ID and analytical batch ID from the drop-down lists. QC identifier is added automatically. If you need to add a Sample ID that is not in the drop-down list, you can do so.

Dissolved oxygen results tab page:

Select the sample ID and analytical batch ID from the drop-down lists. QC identifier is added automatically. If you need to add a Sample ID that is not in the drop-down list, you can do so.